3.3.7.10 White Pine – Red Maple Swamp

3.3.7.10.1 Community Overview

Known occurrences of this forested wetland community are concentrated in and around the bed of extinct Glacial Lake Wisconsin, in the Central Sand Plains Ecological Landscape. Stands occur along the upper reaches of low gradient headwaters streams, or as a zone of vegetation at the wetland-upland interface on the margins of the large acid peatlands that are prominent features in central Wisconsin. The type is not of large extent within the state. Eastern white pine and red maple are the dominant trees, with other species, including yellow birch, black ash, and tamarack present in lesser amounts. Common understory shrubs are speckled alder, winterberry holly, dewberries (*Rubus hispidus,* and *R. pubescens*), and poison sumac; characteristic herbs include skunk cabbage, cinnamon fern, gold thread, and two disjuncts from the eastern United States, bog fern and long sedge. Sphagnum mosses and liverworts are common in some stands, and can form an almost continuous carpet over extensive areas.

Seepages and spring runs are often present, providing important microhabitats for invertebrates, herptiles, and plants. This community occupies a landscape position between wet acid peatlands forested with tamarack and black spruce, and dry forests composed of mixtures of pines and oaks. Transitions to the upland forests can be abrupt, with a sudden shift in the dominance of understory composition of wetland shrubs, herbs, and mosses, to dominance by bracken fern, blueberries (*Vaccinium angustifolium* and *V. myrtilloides*), huckleberry, and Pennsylvania sedge. Because this type has characteristics of an ecotone, with spatially variable microsites, high levels of ground cover, connectivity between wetland and upland communities, and uncommon structural features as compared with the surrounding landscape, it supports an unusual mix of faunal species with high conservation value (e.g., red-shouldered hawk, amphibians, reptiles, and many species of neotropical migrant birds).

3.3.7.10.2 Vertebrate Species of Greatest Conservation Need Associated with White Pine – Red Maple Swamp

Eleven vertebrate Species of Greatest Conservation Need were identified as moderately or significantly associated with white pine – red maple swamp (Table 3-167).

Table 3-167. Vertebrate Species of Greatest Conservation Need that are (or historically were) moderately or significantly associated with white pine – red maple swamp communities.

Species Significantly Associated with White Pine – Red Maple Swamp
Birds
Veery
Species Moderately Associated with White Pine – Red Maple Swamp
Birds
Northern Goshawk
Red-shouldered Hawk
Canada Warbler
Mammals
Northern Long-eared Bat
Silver-haired Bat
Eastern Red Bat
Hoary Bat

In order to provide a framework for decision-makers to set priorities for conservation actions, the species identified in Table 3-167 were subject to further analysis. The additional analysis identified the best opportunities, by Ecological Landscape, for protection, restoration, and/or management of both white pine – red maple swamp and associated vertebrate Species of Greatest Conservation Need. The steps of this analysis were:

- Each species was examined relative to its probability of occurrence in each of the 16 Ecological Landscapes in Wisconsin. This information was then cross-referenced with the opportunity for protection, restoration, and/or management of white pine – red maple swamp in each of the Ecological Landscapes (Tables 3-168 and 3-169).

- Using the analysis described above, a species was further selected if it had both a significant association with white pine – red maple swamp and a high probability of occurring in an Ecological Landscape(s) that represents a major opportunity for protection, restoration and/or management of white pine – red maple swamp. These species are shown in Figure 3-40.

Table 3-168. Vertebrate Species of Greatest Conservation Need that are (or historically were) *significantly* associated with white pine – red maple swamp communities and their association with Ecological Landscapes that support white pine – red maple swamp.

White Pine - Red Maple Swamp	Birds (1)*
Ecological Landscape grouped by opportunity for management, protection, and/or restoration of this community type	Veery
MAJOR	
Central Sand Plains	

*** The number shown in parentheses is the number of Species of Greatest Conservation Need from a particular taxa group that are included in the table. Taxa groups that are not shown did not have any Species of Greatest Conservation Need that met the criteria necessary for inclusion in this table.**

Color Key

- = **HIGH probability the species occurs in this Ecological Landscape**
- = **MODERATE probability the species occurs in this Ecological Landscape**
- = **LOW or NO probability the species occurs in this Ecological Landscape**

Table 3-169. Vertebrate Species of Greatest Conservation Need that are (or historically were) *moderately* associated with white pine – red maple swamp communities and their association with Ecological Landscapes that support white pine – red maple swamp.

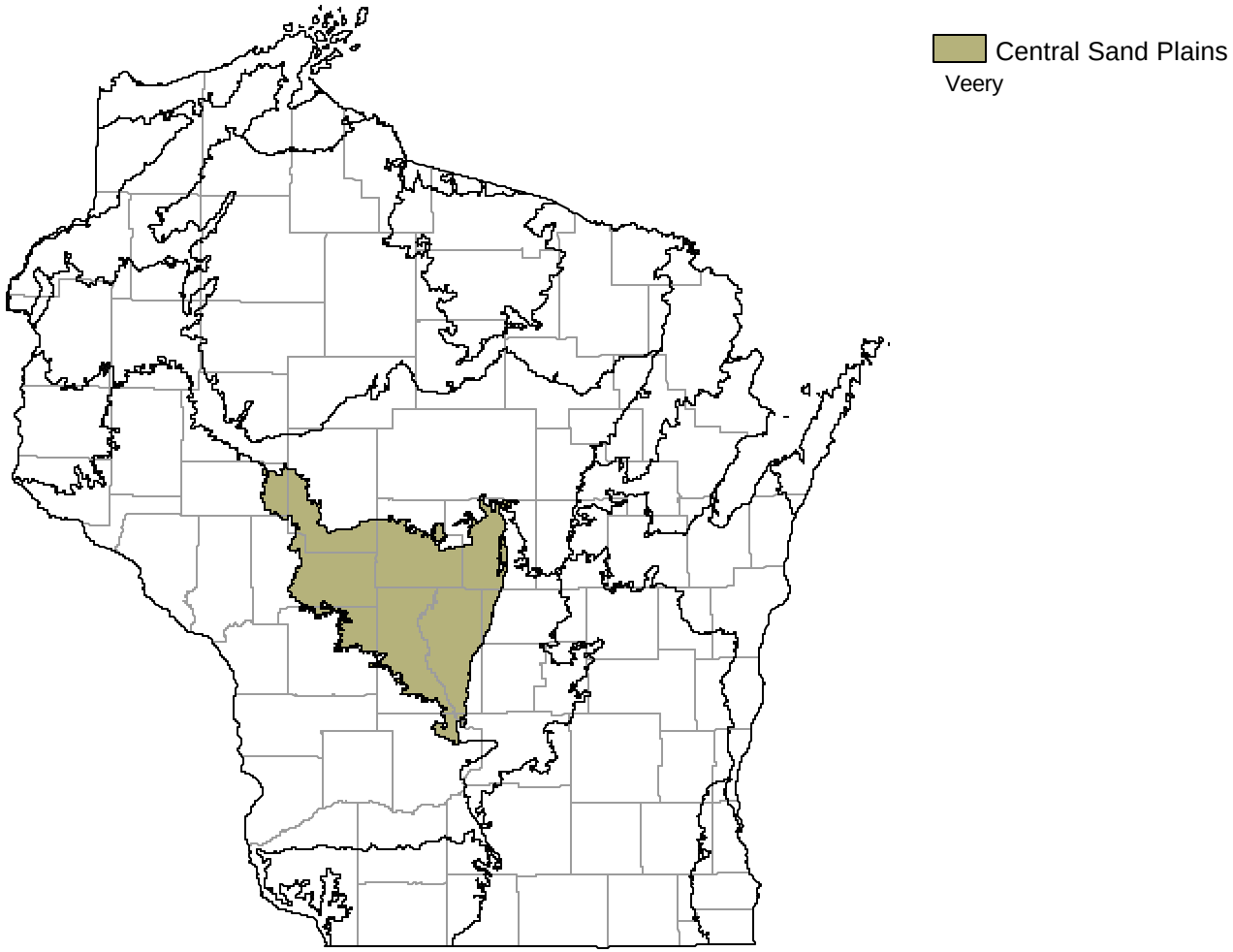
White Pine - Red Maple Swamp	Birds (3)*			Mammals (4)			
Ecological Landscape grouped by opportunity for management, protection, and/or restoration of this community type	Northern Goshawk	Red-shouldered Hawk	Canada Warbler	Northern Long-eared Bat	Silver-haired Bat	Eastern Red Bat	Hoary Bat
MAJOR							
Central Sand Plains							

*** The number shown in parentheses is the number of Species of Greatest Conservation Need from a particular taxa group that are included in the table. Taxa groups that are not shown did not have any Species of Greatest Conservation Need that met the criteria necessary for inclusion in this table.**

Color Key

- = **HIGH probability the species occurs in this Ecological Landscape**
- = **MODERATE probability the species occurs in this Ecological Landscape**
- = **LOW or NO probability the species occurs in this Ecological Landscape**

Figure 3-40. Vertebrate Species of Greatest Conservation Need that have *both* a significant association with white pine – red maple swamp *and* a high probability of occurring in an Ecological Landscape (s) that represents a major opportunity for protection, restoration and/or management of white pine – red maple swamp.



3.3.7.10.3 Threats and Priority Conservation Actions for White Pine – Red Maple Swamp

3.3.7.10.3.1 Statewide Overview of Threats and Priority Conservation Actions for White Pine – Red Maple Swamp

The following list of threats and priority conservation actions were identified for white pine – red maple swamp in Wisconsin. The threats and priority conservation actions described below apply to all of the Ecological Landscapes in Section 3.3.7.10.3.2 unless otherwise indicated.

Threats and Issues

- Unsustainable forest management practices and harvest during improper seasons or conditions can result in soil compaction, rutting, channeling of water, and sedimentation into streams and wetlands. Depending on site-specific conditions, the creation of water channels and ruts can dry a site, or, alternatively, can raise the water table and alter vegetative composition.
- Invasives such as glossy buckthorn are already a problem in some places, and garlic mustard was documented in this type for the first time in late 2004.
- Motorized recreation and high road densities contribute to soil loss and sedimentation, and facilitate the spread of invasive plants.
- High deer populations can lead to excessive browse pressure on young white pine and palatable herbaceous species.
- Older stands are currently being identified for harvest, which often results in the loss of uncommon structural features such as large trees and high canopy closure.
- For purposes of forest management, this community is generally classified together with upland sites as "white pine". More specific prescriptions need to be developed, that will afford better protection to the fragile substrate and important microsites that are not present in dry "white pine" forests.
- Windthrow gaps, and the pit and mound microtopography associated with this natural disturbance, are common and ecologically important structural features that are reduced in abundance in more intensively managed stands of younger forest. In general, this loss of structural complexity contributes to stand simplification. Conversely, clearcuts that are placed adjacent to this type can render them vulnerable to excessive levels of windthrow.
- Habitat fragmentation can be an issue in some parts of the range of this type, in part due to the scale and configuration of timber harvest units.
- This community is uncommon, highly localized, and vulnerable to hydrologic and other disruptions. Intact stands in or approaching old growth conditions are rare and continue to decline, despite their exceptionally high biodiversity values.

Priority Conservation Actions

- Manage this type within large forest blocks to maximize ecological benefits where possible, and reduce stand vulnerability to excessive levels of windthrow.
- Increase connectivity, promote the development of older stands with high canopy closure, and protect site hydrology.
- Monitor and control invasive plants and discourage management practices and recreational uses that facilitate their spread. Continue to support research designed to identify effective biological controls.
- Use Best Management Practices and other sustainable forest community management practices to prevent detrimental soil and water effects.
- Promote awareness of the high ecological values of older, intact stands and work with managers to ensure that these are better represented on the landscape in the future.
- Use adaptive management techniques to restore structure and composition; monitor and share results.

3.3.7.10.3.2 Additional Considerations for White Pine–Red Maple Swamp by Ecological Landscape

Special considerations have been identified for those Ecological Landscapes where major or important opportunities for protection, restoration, and/or management of white pine–red maple swamp exist. Those considerations are described below and are in addition to the statewide threats and priority conservation actions for white pine–red maple swamp in Section 3.3.7.10.3.1.

Additional Considerations for White Pine–Red Maple Swamp in Ecological Landscapes with ***Major*** Opportunities for Protection, Restoration, and/or Management of White Pine–Red Maple Swamp

Central Sand Plains

A majority of the older, intact occurrences of this type have been documented in the Central Sand Plains, making this Ecological Landscape the best place to maintain and potentially increase this type. Examples include Jay Creek Pines State Natural Area, Robinson Creek Pines State Natural Area, and Ketchum Creek Headwaters State Natural Area, all in eastern Jackson County.

Additional Considerations for White Pine–Red Maple Swamp in Ecological Landscapes with ***Important*** Opportunities for Protection, Restoration, and/or Management of White Pine–Red Maple Swamp

Western Coulees and Ridges

A few examples have been documented in the east central part of the Ecological Landscape, in the immediate vicinity of Fort McCoy Military Reservation (Monroe County).